

KY Valid Course List

Kentucky Academic Course Codes

[704 KAR 3:540](#) states the following:

Section 1. (1) Local districts and schools shall use uniform academic course codes, listed and described in the Kentucky Academic Course Code List, to classify all courses offered in each school when reporting to the Kentucky Department of Education.

(2) Reporting to the Kentucky Department of Education shall include the listing and linking of uniform academic courses if the listing of academic courses is required.

Section 2. The linking of local district and school codes to the academic course codes shall be performed by district and school staff using the student information system.

Section 3. The Kentucky Department of Education shall annually audit the use of uniform academic course codes by districts and schools.

Section 4. Incorporation by Reference. (1) "Academic Course Code List", April 2010, is incorporated by reference.

The Kentucky Academic Course Code List contains a listing of course descriptions and parameters along with certifications that fit the parameters for a given course. The content listed for a course cannot be changed; however, the grade range and population information listed for each course are not absolute and can vary slightly depending on the needs of the school. Districts should choose the course that most closely represents the students in a given course. ***The description and content of a course are the determining factors in what should be selected.***

Contact Information:

- Districts may contact Kiley Whitaker at (502) 564- 4286 or Caryn Davidson at (502) 564- 2106, or email at kiley.whitaker@education.ky.gov or caryn.davidson@education.ky.gov with questions pertaining to course content.
- Districts may contact Kiley Whitaker at (502) 564- 4286 or kiley.whitaker@education.ky.gov with questions pertaining to technical issues.
- Districts may contact the EPSB Division of Certification at (502) 564-4606 or dcert@ky.gov with question pertaining to certification.
- Districts may contact Megan Cummins at (502) 696-7397 or mcummins@kheaa.com with questions pertaining to KEES eligibility.

HOW TO USE THIS DOCUMENT

This document contains a listing of course descriptions and parameters along with certifications that fit the parameters for a given course. The grade range and population information listed for each course are not absolute. Please choose the course that most closely represents the students in a given course.

EXAMPLE

John Q Middle School had 5th, 6th, and 7th grade students taking a Creative Art course. This course would be linked to course number **500711: Creative Art – Comprehensive**, which shows with a recommended grade range of 6th – 12th.

The courses listed in this document are not meant to replace the course titles and course numbers already in use at the school level. Schools will link their courses on the Infinite Campus “Course Master” tab OR in the “Course” tab to courses listed in this document.

Schools may have created courses that are very unique in order to meet students’ needs. If a course does not meet the definition or content of one contained in this document, please use course number **909999: School Defined Course**, and code the correct content through the LEAD report.

CERTIFICATIONS

It is important to note that the certificates listed are the ones that fit **ALL** of the parameters for a specific course – there may be other certificates that can teach it with slightly more restrictive parameters.

In addition to Highly Qualified considerations, please take note of the following information from ***The Kentucky Academic Standards*** with regard to middle school courses that are offered for high school credit.

High School Credit Earned in Middle School

It is expected that most students will earn these credits during their high school years. However, local school districts may offer these courses to middle level students if the following criteria are met:

- the content and the rigor of the course is the same as established in the *Kentucky Academic Standards*
- the students demonstrate mastery of the middle level content as specified in the *Kentucky Academic Standards*
- the district has criteria in place to make reasonable determination that the middle level student is capable of success in the high school course
- **the middle level course is taught by teachers with either secondary or middle level certification with appropriate content specialization**

Although middle level courses list the Provisional and Standard Elementary Certificates, Grades 1-8 as allowable under the parameters of these courses, they will not meet the above requirements for courses that are offered for high school credit.

This document is a guide; therefore the EPSB disclaims any warranties as to the validity of the information in this document. Users of this document are responsible for verifying information received through cross-referencing the official record in the EPSB’s Division of Certification. The EPSB shall not be liable to the recipient, or to any third party using this document or information obtained therefrom, for any damages whatsoever arising out of the use of this document.

Table of Contents

Table of Contents..... 4

Mathematics (270000)..... 5

 Mathematics - Middle (270200) 6

 Mathematics - Algebra (270300)..... 10

 Mathematics - Geometry (270400) 15

 Mathematics - Calculus (270500) 16

 Mathematics - Other Mathematical Topics (270600) 19

 Mathematics - Integrated Mathematics (270700) 22

Mathematics

(270000)

Mathematics - Middle (270200)

270201 - Sixth Grade Mathematics

Grade Level: 6 - 6

Credits:

Description: This course should focus primarily on the four critical areas for grade 6: (1) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers; (3) developing an initial understanding of algebraic notation, representations, and processes by writing, interpreting, and using expressions and equations; and (4) developing understanding of statistical thinking.

Content: Middle School Mathematics (general)

Population: General

270202 - Seventh Grade Mathematics

Grade Level: 7 - 7

Credits:

Description: This course should primarily focus on the four critical areas for grade 7: (1) developing understanding of and applying proportional relationships; (2) developing understanding of operations with rational numbers and working with expressions (numerical and algebraic) and linear equations including those in context (building foundation for algebraic fluency); (3) solving problems involving scale drawings and informal geometric constructions, and working with two- and three-dimensional shapes to solve problems involving area, surface area, and volume; and (4) drawing inferences about populations based on samples.

Content: Middle School Mathematics (general)

Population: General

270203 - Eighth Grade Mathematics

Grade Level: 8 - 8

Credits:

Description: This course should primarily focus on the three critical areas for grade 8 that build a foundation for algebraic fluency, assist students with making connections to geometry and prepare students for success in the high school mathematics graduation requirements: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem.

Content: Middle School Mathematics (general)

Population: General

270204 - Accelerated Sixth Grade Mathematics

Grade Level: 6 - 6

Credits:

Description: This course code should be used for the acceleration of middle school math curriculum for sixth graders and the course should be designed to prepare students to take high school mathematics in the middle school. This course should contain a compacted curriculum (content is compressed, not skipped) that allows students to accelerate and should focus primarily on the critical areas listed under Grades 6 - 8 mathematics in this document.

Content: Middle School Mathematics (general)

Population: General

270205 - Accelerated Seventh Grade Mathematics

Grade Level: 7 - 7

Credits:

Description: This course code should be used for the acceleration of middle school math curriculum for seventh graders and the course should be designed to prepare students to take high school mathematics in the middle school. This course should contain a compacted curriculum (content is compressed, not skipped) that allows students to accelerate and should focus primarily on the critical areas listed under Grades 7 - 8 mathematics in this document.

Content: Middle School Mathematics (general)

Population: General

270206 - Accelerated Eighth Grade Mathematics

Grade Level: 8 - 8

Credits:

Description: This course code should be used for the acceleration of middle school math curriculum and the course should be designed to prepare students to accelerate in high school mathematics courses. This course should contain a compacted curriculum (content is compressed, not skipped) that allows students to accelerate and should focus primarily critical areas listed under Grade 8 mathematics in this document and some HS Algebra 1 content as listed in this document; however, credit in this course is not recognized as a high school graduation credit.

Content: Middle School Mathematics (general)

Population: General

270242 - Algebra 1 (Grades 6-8 - non-HS credit)

Grade Level: 6 - 8

Credits:

Description: This course should contain a compacted curriculum (content compressed, not skipped) that allows students to accelerate and complete the required math content of the middle grades and high school (HS) Algebra 1 without the same expectations as a high school course. This course should focus primarily on the critical areas of Grade 8 AND HS Algebra 1 content: represent relationships mathematically, develop fluency in writing, interpreting equations, translating between various forms of linear equations and inequalities using them to solve problems including system of equations, master the solution of linear equations, apply related solution techniques and the laws of exponents to solve simple exponential equations, understand functions definition and notation, contrast linear and exponential functions using the familiar tools of tables, graphs and symbols, use linear models and regression techniques with descriptive statistics, perform arithmetic operations on polynomials, factor quadratic and cubic expressions (seeing structure), solve quadratic equations to lay foundational work for quadratic functions and explore non-linear relationships. **Students receiving credit for this course must take HS Algebra 1 to meet minimum high school graduation requirements. This course does not meet minimum high school graduation requirements.** If this course has the same content, rigor and expectations of the HS Algebra 1 then this course meets the Kentucky minimum high school graduation requirement of Algebra 1 per KRS 158.622 and course code 270304 (HS) should be used.

Content: Algebra I

Population: General

270243 - Geometry (Grades 6-8 - non-HS credit)

Grade Level: 6 - 8

Credits:

Description: This course allows students to accelerate and complete high school (HS) Geometry content in middle school without the same expectations as a high school course. Students taking this course should have completed the middle school math compacted curriculum (content is compressed, not skipped) and HS Algebra I. This course should focus primarily on HS Geometry content: prove theorems and solve problems about triangles, quadrilaterals, and other polygons, apply reasoning to complete geometric constructions and explanations, establish triangle congruence criteria based on analyses of rigid motions and formal constructions, use similarity to solve problems and apply similarity in right triangles to understand right triangle trigonometry with particular attention to special right triangles and the Pythagorean theorem, develop the Law of Sines and Cosines from understanding relationships in right triangles, apply knowledge of two-dimensional shapes to consider the shapes of cross-sections and the result of rotating a two-dimensional object about a line, connect algebraic concepts to geometric concepts through the rectangular coordinate system, such as deriving the equation of a circle given the center and radius length using the distance formula or Pythagorean Theorem and prove basic theorems about circles, inscribed angle theorem and theorems about chords, secants, and tangents dealing with segment lengths and angle measures. **Students receiving credit for this course must take HS Geometry to meet minimum high school graduation requirements. This course does not meet minimum high school graduation requirements.** However, if this course has the same content, rigor and expectations of the HS Geometry then this course meets the Kentucky minimum high school graduation requirement of Geometry per KRS 158.622 and course code 270401 should be used.

Content: Geometry

Population: General

270245 - Algebra 2 (Grades 6-8 - non-HS Credit)

Grade Level: 6 - 8

Credits: 0

Description: This course should focus primarily on HS Algebra 2 content: draw on analogies between polynomial arithmetic and base-ten computation, focusing on properties of operations, connect multiplication of polynomials with polynomials of multi-digit integers and division of polynomials with long division of integers, identify zeros of polynomials and make connections between zeros of polynomials and solutions of polynomial equations, building on previous work with trigonometry ratios and circles, use coordinate geometry to extend trigonometry to model periodic phenomena, work with a variety of function families exploring the effects of transformations in order to generalize the effect regardless of the underlying function, analyze functions using different representations, build, interpret and compare functions including square root, cube root, piece-wise and logarithmic functions, identify appropriate types of functions to model a situation, adjust parameters to improve the model, compare models by analyzing appropriateness of fit and make judgments about the domain over which a model is a good fit. **Students receiving credit for this course must take HS Algebra 2 to meet minimum high school graduation requirements.** This course does not meet minimum high school graduation requirements. However, if this course has the same content, rigor and expectations of HS Algebra 2 then this course meets the Kentucky minimum high school graduation requirement of Algebra 2 per KRS 158.622 and course code 270311 should be used.

Content: Algebra II

Population: General

270290 - Mathematics Intervention (Grades 6-8)

Grade Level: 6 - 8

Credits:

Description: This course is designed for students who need additional assistance beyond the grade level math course. At grade 8, this course should be designed to ensure that students are appropriately ready for high school level mathematics. This course uses intervention strategies to build and support the student's mathematical and algebraic understanding. This course should be taken in conjunction with the grade level math course and does not replace the grade level course. Intervention should be documented using the intervention tab in the student information system. This course should be named locally to reflect the content and grade level, e.g., 6th Grade Math Intervention, 7th Grade Math Intervention and 8th Grade Intervention.

Content: Middle School Mathematics (General)

Population: General

Mathematics - Algebra (270300)

270301 - HS Pre-Algebra/Pre-High School Mathematics (Grades 9 - 10)

Grade Level: 9 - 10

Credits: 1E

Description: This course should focus on skills necessary to be successful in a HS Algebra 1 course and is not necessarily limited to the following: (1) completing understanding of division of fractions and extending the notion of number to the system of rational numbers and developing understanding of operations with rational numbers and writing, interpreting, and using expressions and equations; (2) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (3) developing understanding of and applying proportional relationships and solving problems involving scale drawings; (4) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (5) grasping the concept of a function and using functions to describe quantitative relationships; (6) understanding and applying the Pythagorean Theorem; (7) working with two- and three-dimensional shapes to solve problems involving area, surface area, and volume and (8) developing understanding of statistical thinking and drawing inferences about populations based on samples. **This course cannot serve as Algebra 1, Geometry or Algebra 2 credit for high school graduation.** *This course is not available for middle school students because middle school mathematics is pre-algebra and is described as such in this course description. This course is for high school students who are not prepared to successfully complete a high school Algebra 1 course or an Integrated 1 course.*

Content: Pre-Algebra

Population: General

270302 - Algebra 1 (Part 1)/Algebra 1 (Part A)/ Algebra 0.5

Grade Level: 9 - 10

Credits: 1/1E

Description: This course is the first course of a set of Algebra 1 courses and is designed for students who need additional time such as using double block period or two semesters in block schedules to intensify learning or possibly over two years in order for students to attain success on all concepts addressed in a high school Algebra 1 course. This course should be designed to meet the needs of struggling learners with an emphasis on conceptual understanding and connections to numeracy. Students must pass both courses (270302 and 270303) to earn the Algebra 1 credit for high school graduation. See HS Algebra 1 course code 270304 for a description of HS Algebra 1.

Content: Algebra I

Population: General

270303 - Algebra 1 (Part 2)/Algebra 1 (Part B)

Grade Level: 9 - 10

Credits: 1/1E

Description: This course is the second course of the set of algebra 1 courses and is designed for students who need additional time such as using double block period or two semesters in block schedules to intensify learning or possibly over two years in order for students to attain success on all concepts addressed in a high school Algebra 1 course. This course should be designed to meet the needs of struggling learners with an emphasis on conceptual understanding and connections to numeracy. Students must pass both courses (270302 and 270303) to earn the Algebra 1 credit for high school graduation. See HS Algebra 1 course code 270304 in this document for a description of HS Algebra 1.

Content: Algebra I

Population: General

270304 - HS Algebra 1

Grade Level: 9 - 11

Credits: 1

Description: This course should focus primarily on HS Algebra 1 content: represent relationships mathematically, develop fluency in writing, interpreting expressions and equations, translating between various forms of linear equations and inequalities using them to solve problems including system of equations, master the solution of linear equations, apply related solution techniques and the laws of exponents to solve simple exponential equations, understand functions definition and notation, contrast linear and exponential functions using the familiar tools of tables, graphs and symbols, use graphical representations and knowledge of the context to make judgments about the appropriateness of linear models, perform arithmetic operations on polynomials, solve systems of equations, represent and solve equations and inequalities, interpret functions and use function notation, construct and compare linear and exponential models and solve related problems, factor quadratic and cubic expressions (seeing structure), solve quadratic equations to lay foundational work for quadratic functions and explore non-linear relationships. This course should be designed to meet the high school graduation credit for Algebra 1 and to build a solid foundation for students to be successful in HS Geometry and Algebra 2.

NOTE: Since the content of Applied Algebra 1, Technical Algebra 1, Honors Algebra 1, Accelerated Algebra 1, MST Algebra 1 and interdisciplinary Algebra 1 courses is Algebra 1, the course code 270304 - HS Algebra 1 should be used for all such courses; however, each course may be titled locally according to type.

Content: Algebra I

Population: General

270308 - HS Algebra 1 Intervention

Grade Level: 9 - 11

Credits: 0.5E or 1E

Description: This course is designed for students who need additional time to learn HS Algebra 1 topics and should run concurrently with HS Algebra 1. This course should use hands-on activities and explorations with graphing calculators to support the study of algebraic concepts addressed in a HS Algebra 1 course and should be designed to provide individualized support to enhance a student's college or career readiness. See HS Algebra 1 course code 270304 in this document for a description of HS Algebra 1. This course does not meet the Algebra 1 graduation requirement.

Content: Algebra I
Population: General

270309 - HS Mathematics Intervention (General)

Grade Level: 9 - 12

Credits: 0.5E or 1E

Description: This course is designed for students who need additional time and help with mathematical strategies. This course uses hands-on activities and explorations with graphing calculators to support the study of the concepts addressed in the standards for high school mathematics related to high school graduation requirements. This course should be designed to provide individualized support to enhance a student's college or career readiness. This course does not meet any of the 3 required mathematics credits for high school graduation: Algebra 1, Geometry or Algebra 2.

Content: High School Mathematics (General)

Population: General

270310 - Algebra 1.5/Introduction to Algebra 2

Grade Level: 9 - 11

Credits: 1E

Description: This course is designed for those students who have completed the HS Algebra 1 graduation credit, but are not deemed sufficiently prepared to attempt a rigorous, Algebra 2 course and should be designed to provide individualized support to enhance a student's preparedness for Algebra 2. The intent of this course is to go beyond Algebra 1 and prepare students for the Algebra 2 course. This course does not meet any of the 3 required mathematics credits for high school graduation: Algebra 1, Geometry or Algebra 2.

Content: Algebra II

Population: General

270311 - HS Algebra 2

Grade Level: 9 - 12

Credits: 1

Description: "This course should focus primarily on HS Algebra 2 content: draw on analogies between polynomial arithmetic and base-ten computation, focusing on properties of operations, connect multiplication of polynomials with polynomials of multi-digit integers and division of polynomials with long division of integers, identify zeros of polynomials and make connections between zeros of polynomials and solutions of polynomial equations, building on previous work with trigonometry ratios and circles, use coordinate geometry to extend trigonometry to model periodic phenomena, work with a variety of function families exploring the effects of transformations in order to generalize the effect regardless of the underlying function, analyze functions using different representations, build, interpret and compare functions including square root, cube root, piece-wise and logarithmic functions, identify appropriate types of functions to model a situation, adjust parameters to improve the model, compare models by analyzing appropriateness of fit and make judgments about the domain over which a model is a good fit.

NOTE: The content of the course is HS Algebra 2 and may be titled locally as Applied Algebra 2, Technical Algebra 2 or named as an interdisciplinary Algebra 2.

Students taking this course should take the state end of course assessment (EOC) exam for Algebra 2.

This code is to be used for both middle and high school students taking Algebra 2 for graduation credit. It is also to be used in lieu of the Integrated/Applied Math 3 or 4 depending on which course completes the required high school math curriculum (see course code 270704). (Please consult the EPSB website regarding teaching permissions for teaching this course in middle school grades 6-8. Credentials listed for this course code (270311) are KY EPSB certified high school mathematics teachers.)

Content: Algebra II

Population: General

270318 - HS Algebra 2 Intervention

Grade Level: 9 - 12

Credits: 0.5E or 1E

Description: This course is designed for students who need additional time with Algebra 2 topics and runs concurrently with Algebra 2. This course should use hands-on activities and explorations with graphing calculators to support the study of algebraic concepts addressed in a HS Algebra 2 course and should be designed to provide individualized support to enhance a student's college or career readiness. See HS Algebra 2 course code 270311 for a description of HS Algebra 2. **This course does not meet the Algebra 2 graduation requirement.**

Content: Algebra II

Population: General

270320 - College Algebra

Grade Level: 11 - 12

Credits: 1E

Description: This course is designed to be equivalent to a credit-bearing college algebra course for students intending to enter into post-secondary education and pursue a degree that requires an algebra pathway.

The content goes beyond a traditional Algebra 2 course and should provide opportunities for students to: solve applied (in context) problems using various types of equations (linear, quadratic, exponential, trigonometric, logarithmic and power functions piece-wise), read and analyze real-life problems using mathematical modeling, perform matrix operations, graph and interpret data represented by linear, quadratic, exponential, logarithmic and power functions, use numerical and graphical data to make reasonable and valid conclusions, solve applied problems that can be modeled with equations and inequalities involving absolute value, solve systems of linear equations using several techniques including matrices, use and verify trigonometric identities, solve applied problems that can be modeled with exponential and logarithmic equations, find terms of sequences and find the sum of finite series. This course code can be used for dual credit college algebra. Kentucky's public college readiness scores for placement into college algebra are: ACT - 22 or higher, SAT 510 or higher or KYOTE College Algebra 14 or higher. (This course is not a readiness for College Algebra. Students in this course should have met at least one of the college algebra benchmarks.)

Content: Advanced Topics in Mathematics

Population: General

270321 - Algebra 3/Preparation for College Algebra

Grade Level: 11 - 12

Credits: 1E

Description: **The content should go beyond traditional Algebra 2 content.** This course is designed for students who are intending to enter into post-secondary education and perhaps pursue a degree that requires an algebra pathway but are in need of additional mathematics preparation in order to be successful in a credit-bearing college algebra course. (See course description for College Algebra 270320) Objectives for this course may include simplify algebraic expressions, solve linear and quadratic equations, solve equations that can be simplified to linear or quadratic equations, solve equations and inequalities involving absolute value, solve systems of linear equations, mathematically model and solve linear, quadratic, exponential, and trigonometric functions, use graphical representations and knowledge of the context to make judgments about the appropriateness of models, find the roots of polynomial functions and solve polynomial equations, graph linear, quadratic, exponential, logarithmic and polynomial functions, perform complex number arithmetic.

Content: Advanced Topics in Mathematics

Population: General

Mathematics - Geometry (270400)

270401 - Geometry

Grade Level: 9 - 12

Credits: 1

Description: This course should focus primarily on HS Geometry content: prove theorems and solve problems about triangles, quadrilaterals, and other polygons, apply reasoning to complete geometric constructions and explanations, establish triangle congruence criteria based on analyses of rigid motions and formal constructions, use similarity to solve problems and apply similarity in right triangles to understand right triangle trigonometry with particular attention to special right triangles and the Pythagorean theorem, develop the Law of Sines and Cosines from understanding relationships in right triangles, apply knowledge of two-dimensional shapes to consider the shapes of cross-sections and the result of rotating a two-dimensional object about a line, connect algebraic concepts to geometric concepts through the rectangular coordinate system, such as deriving the equation of a circle given the center and radius length using the distance formula or Pythagorean Theorem and prove basic theorems about circles, inscribed angle theorem and theorems about chords, secants, and tangents dealing with segment lengths and angle measures. Since the content of Applied Geometry, Technical Geometry, Honors Geometry, Accelerated Geometry, MST Geometry and other courses named as an interdisciplinary geometry is HS geometry, the course code 270401 - HS Geometry should be used; however, this course may be titled locally as Applied Geometry, Technical Geometry, Honors Geometry, Accelerated Geometry, MST Geometry or named as an interdisciplinary Geometry.

Content: Geometry

Population: General

270406 - HS Geometry Intervention

Grade Level: 9 - 12

Credits: 0.5E or 1E

Description: This course is designed for students who need additional time with HS Geometry topics and runs concurrently with HS Geometry. This course should use hands-on activities and explorations with graphing calculators to support the study of geometric concepts addressed in a HS Geometry course and should be designed to provide individualized support to enhance a student's college or career readiness. This course does not meet the HS Geometry graduation requirement. See HS Geometry course code 270401 for a description of HS Geometry.

Content: Geometry

Population: General

Mathematics - Calculus (270500)

270501 - Pre-Calculus

Grade Level: 10 - 12

Credits: 1E

Description: This course is designed for students to attain the concepts necessary to be successful in a Calculus course, an AP Calculus course or a College Calculus course. Objectives for this course should include, but are not limited to: solve equations and inequalities involving polynomial, rational, exponential, logarithmic and trigonometric functions, understand and apply the behavior and properties of polynomial, rational, exponential, logarithmic, and trigonometric functions, graph polynomial, rational, exponential, logarithmic, and trigonometric functions, use technology to solve and graph various types of equations and inequalities and prove trigonometric identities. Standards for this course may also include the (+) standards denoted in the Kentucky academic standards document.

NOTE: Since the content of Honors Pre-Calculus, Accelerated Pre-Calculus and MST Pre-Calculus is pre-calculus, the course code 270501 Pre-Calculus should be used; however, this course may be titled locally as Honors Pre-Calculus, Accelerated Pre-Calculus or MST Pre-Calculus. IB pre-calculus classes should use 270505.

Content: Pre-Calculus

Population: General

270505 - IB Pre-Calculus

Grade Level: 10 - 12

Credits: 1E

Description: This course is designed to address the curriculum for the IB Pre-Calculus course as described in the International Baccalaureate (IB) guidelines. Only schools with an IB program should use this code (270505) for Pre-Calculus. All others should use course code 270501 Pre-Calculus.

Content: Pre-Calculus

Population: General

270506 - College Calculus III (For Dual Credit Only)

Grade Level: 11 - 12

Credits: 1E

Description: This college level mathematics course develops main ideas of differentiation and integration of functions of several variables and introduces vector calculus. This course should focus primarily on: vectors, analytic geometry of 3-dimensional space, functions of several variables, partial derivatives, directional derivatives, integrals of functions of two and three variables, vector fields, line integrals, Green's theorem, and the divergence theorem. Prerequisite for this course: College Board AP Calculus BC score of 4 or 5 on AP exam, or Calculus II dual credit course with a 'C' or better.

Content: Calculus

Population: General

270511 - Calculus I

Grade Level: 11 - 12

Credits: 1E

Description: This course is designed to address all the concepts normally covered in differential and integral calculus. This course code may be used as a dual credit course code. Students who successfully complete this course should be able to demonstrate an understanding and use of the concept of a function, whether the function is represented by tabulated data, graphs, or formulas, use calculus to formulate and solve problems, understand the derivative as a rate of change, including its connections to tangent lines, linear approximations, extrema, and instantaneous velocity, understand the definite integral as a measurement of area, as a limit, and as an inverse of differentiation, use technology to solve problems, compute limits, derivatives, and antiderivatives and determine the continuity of a function and understand its significance and effectively communicate solutions to problems using correct and precise mathematical language. Students taking this course are not expected to take the College Board Advanced Placement exam for AP Calculus AB or BC. This course code should not be used for IB Calculus.

Content: Calculus

Population: General

270512 - IB Calculus

Grade Level: 11 - 12

Credits: 1E

Description: This course is designed to address the curriculum for the IB Calculus course as described in the International Baccalaureate guidelines. Only schools with an IB program should use this code (270512) for Calculus. All other schools should use course code 270511 Calculus or 270513 AP Calculus AB.

Content: Calculus

Population: General

270513 - AP Calculus AB

Grade Level: 10 - 12

Credits: 1E

Description: This course is designed to address all the concepts delineated in the College Board guidelines for the AP Calculus AB examination. Students taking this course may be required to take the AP Calculus AB exam. According to the College Board description of AP Calculus, "(These courses) are primarily concerned with developing the students' understanding of the concepts of calculus and providing experience with its methods and applications. The courses emphasize a multi-representational approach to calculus, with concepts, results, and problems being expressed graphically, numerically, analytically, and verbally. The connections among these representations also are important" and "Technology should be used regularly by students and teachers to reinforce the relationships among the multiple representations of functions, to confirm written work, to implement experimentation, and to assist in interpreting results."

Content: AP Calculus

Population: General

270514 - AP Calculus BC

Grade Level: 11 - 12

Credits: 1E

Description: This course is designed to address all the concepts delineated in the College Board guidelines for the BC Calculus examination.

Content: AP Calculus

Population: General

270515 - College Calculus II (For Dual Credit Only)

Grade Level: 11 - 12

Credits: 1E

Description: This college level mathematics course includes applications of integration, advanced integration techniques, sequences and infinite series, and parametric and polar equations. This course further develops techniques and applications of integration and is an introduction to sequences and series. Topics include integration strategies, computing areas and volumes, arc length, parametric curves, polar coordinates, sequences and series, tests for convergence of series, power series, and Taylor series. This course is not associated with the College Board AP Calculus AB or BC examinations. Prerequisite for this course: College Board AP Calculus AB score of 4 or 5 on AP exam or Calculus I dual credit course with a 'C' or better.

Content: Calculus

Population: General

Mathematics - Other Mathematical Topics (270600)

270601 - Data and Measurement

Grade Level: 9 - 12

Credits: 1E

Description: This course should focus primarily on the conceptual categories: Statistics & Probability and Modeling and should include summarizing, representing and interpreting data and making inferences, justifying conclusions representing using linear, quadratic and exponential relationships and modeling descriptively and analytically. Technology should be an integral part of this course to generate plots, regressions functions and correlation coefficients and to simulate possible outcomes relatively quickly based on a given situation.

Content: Extended Topics In Algebra (Data and Measurement)

Population: General

270602 - Probability and Statistics

Grade Level: 9 - 12

Credits: 1E

Description: This course should focus primarily on the conceptual categories: Statistics & Probability and Modeling to address such concepts as theoretical and experimental probability, independent and conditional probability using them to interpret data, rules of probability to compute probabilities of compound events in a uniform probability model, calculations of expected values, analysis of decisions and strategies using probability concepts, binomial distributions, normal distributions, displaying and describing distributions of data, collecting data, measures of central tendency and spread and methods of inferential statistics. Technology should be an integral part of this course to generate plots, regressions functions and correlation coefficients and to simulate possible outcomes relatively quickly based on a given situation.

Content: Probability/Statistics

Population: General

270604 - AP Statistics

Grade Level: 11 - 12

Credits: 1E

Description: This course is designed to address all the concepts delineated in the College Board guidelines for the AP Statistics examination. Students taking this course may be required to take the AP Statistics exam. According to College Board description of AP Statistics, "The purpose of the AP course in statistics is to introduce students to the major concepts and tools for collecting, analyzing and drawing conclusions from data. Students are exposed to four broad conceptual themes: (1) Exploring Data: Describing patterns and departures from patterns, (2) Sampling and Experimentation: Planning and conducting a study, (3) Anticipating Patterns: Exploring random phenomena using probability and simulation and (4) Statistical Inference: Estimating population parameters and testing hypotheses."

<http://media.collegeboard.com/digitalServices/pdf/ap/ap-statistics-course-description.pdf>

Content: AP Statistics

Population: General

270611 - Discrete Mathematics

Grade Level: 10 - 12

Credits: 1E

Description: This course is designed for students who have completed high school mathematics courses through Algebra 2 and are interested in a future in business or computer applications, and should address such topics as set theory, proofs by mathematical induction, graph theory, permutations and combinations, and other topics as deemed appropriate.

Content: Discrete Mathematics

Population: General

270612 - Finite Mathematics

Grade Level: 10 - 12

Credits: 1E

Description: This course is designed for students who have completed high school mathematics courses through Algebra 2, and should include modeling situations through linear systems using matrices, linear inequalities systems (programming), data analysis, probability and finance applications. Course content may include but is not limited to: Finding an Euler circuit on a graph or show that no Euler circuit exists; solving the traveling salesperson problem for complete weighted graphs with four or fewer vertices using Hamiltonian cycles; finding a minimum cost spanning tree; schedule tasks using a list-processing algorithm; applying bin-packing heuristics; applying graph theory to real-world problems; solving real-world linear programming problems using the pictorial method and applying other mathematical models and techniques to real-world problems. See conceptual category for high school: Modeling for the basic mathematical modeling cycle and examples of modeling situations.

Content: Finite Mathematics

Population: General

270621 - Advanced Topics in Mathematics

Grade Level: 10 - 12

Credits: 1E

Description: This course is designed for students who have completed Algebra 1, Geometry and Algebra 2 content and should allow students to pursue topics in mathematics beyond content required for high school students. This course may cover topics from combined higher level courses or topics which are not found in other higher level courses but are of interest to students for college and career readiness. This course should be locally named according to the major content of the course.

Content: Advanced Topics in Mathematics

Population: General

270631 - Trigonometry

Grade Level: 10 - 12

Credits: 1E

Description: This course is designed for students who have completed Algebra 2 and want to proceed further into aspects of Trigonometry. This course should contain, but is not limited to: evaluating a trigonometric function for an angle expressed in radians and degrees, solving right and oblique triangles, including real-life applications, using and verifying (proving) trigonometric identities, solving trigonometric equations; and graphing and interpreting graphs of trigonometric functions in rectangular and polar form.

Content: Trigonometry

Population: General

270643 - Technical Mathematics

Grade Level: 10 - 12

Credits: 0.5E or 1E

Description: Some mathematical concepts from algebra, geometry, and trigonometry and applications relevant to these topics are studied. Topics to be covered include unit conversions, variation, measurement of geometric figures, vectors, and solving right and oblique triangles using trigonometry. Emphasis is on applications in the various technologies.

Content: High School Mathematics (General)

Population: General

270651 - Math - Independent Study

Grade Level: 9 - 12

Credits: 0.5E or 1E

Description: This course is designed to provide an opportunity for the student to make an in-depth study on a topic related to mathematics. The student has the responsibility and freedom to research, analyze, evaluate, and present conclusions in written and/or oral form. Students would apply and be accepted for independent study in a manner determined by the local district. Local course name should reflect the topic being studied.

Content: High School Mathematics (General)

Population: General

270661 - Mathematics Concepts

Grade Level: 10 - 12

Credits: 0.5E or 1E

Description: This course is designed to be taken after completion of Algebra 1, Geometry and Algebra 2. Topics include probability and statistics, extension of algebra and geometry concepts, and discrete mathematics. This course could serve as a mathematics elective for high school graduation, but not as one of the three required credits for high school graduation: Algebra 1, Geometry or Algebra 2.

Content: Mathematics

Population: General

270690 - Multi-Subject/Multi-Grade Mathematics

Grade Level: 6 - 12

Credits:

Description: This course is to be used for resource special education and alternative setting classrooms where students are receiving instruction in multiple content areas within the Math core. The individualized content for each specific course taught under this umbrella code must meet the description listed in the State Uniform Course Code document for that course. This code should not be utilized when instruction is being provided related to one specific course.

Students taking courses where an End Of Course (EOC) exam is required must be enrolled in a course with the appropriate EOC related state course code. This code cannot be used for EOC exam required content areas.

Certification requirements are dependent upon the population being served.

Content: Mathematics

Population: Varies

Mathematics - Integrated Mathematics (270700)

270701 - Integrated/Applied Mathematics 1

Grade Level: 9 - 10

Credits: 1

Description: This course is the first year of Integrated Mathematics pathway. The integrated approach to high school mathematics is typically seen internationally and consists of a sequence of three to four courses depending on school's curriculum; each course includes number, algebra, geometry, probability and statistics and is no less rigorous than a traditional pathway: Algebra 1, Geometry and Algebra 2. Typically Integrated I has more geometric concepts than a traditional Algebra I course. For possible models on how to organize HS standards into courses, see the Common Core State Standards, Appendix A: Integrated Model Course Pathways in Mathematics or the open education resource Mathematics Vision Project at <http://www.mathematicsvisionproject.org/curriculum.html>.

Content: High School Mathematics, Algebra and Geometry

Population: General

270702 - Integrated/Applied Mathematics 2

Grade Level: 10 - 11

Credits: 1

Description: This course is the second year of Integrated Mathematics. The integrated approach to high school mathematics is typically seen internationally and consists of a sequence of three to four courses depending on school's curriculum; each course includes number, algebra, geometry, probability and statistics and is no less rigorous than a traditional pathway: Algebra 1, Geometry and Algebra 2. Typically, Integrated II has a blend of geometric and algebraic concepts along with probability. For possible models on how to organize HS standards into courses, see the Common Core State Standards, Appendix A: Integrated Model Course Pathways in Mathematics or the open education resource Mathematics Vision Project at <http://www.mathematicsvisionproject.org/curriculum.html>.

Content: High School Mathematics, Algebra and Geometry

Population: General

270703 - Integrated/Applied Mathematics 3

Grade Level: 10 - 12

Credits: 0

Description: This is no longer an active course code. Students enrolled in the third course in the sequence of integrated curricula should be enrolled a course linked to the Algebra II state course code of 270311.

270704 - Integrated/Applied Mathematics 3 or 4

Grade Level: 11 - 12

Credits: 1E

Description: An integrated approach to high school mathematics is typically seen internationally and consists of a sequence of three to four courses depending on school's curriculum; each course includes number, algebra, geometry, probability and statistics and is no less rigorous than a traditional pathway: Algebra 1, Geometry and Algebra 2. This course could be the third or fourth year of an integrated mathematics sequence depending on the school's integrated mathematics curriculum. Typically, the third course completes the Algebra 2 content for high school; so, if Integrated Mathematics 3 completes the school's integrated mathematics curriculum then the course code 270311 Algebra 2 should be used for Integrated Mathematics 3 and this code (270704) should be used for Integrated Mathematics 4. However, if Integrated 4 completes the school's integrated mathematics curriculum then this code (270704) should be used for Integrated 3 and course code 270311 Algebra 2 should be used for Integrated Mathematics 4. The courses should be named appropriately at the local level. For possible models on how to organize HS standards into courses, please see the Common Core State Standards, Appendix A: Integrated Model Course Pathways in Mathematics or the open education resource Mathematics Vision Project at <http://www.mathematicsvisionproject.org/curriculum.html>.

Content: High School Mathematics, Advanced Algebra and Geometry

Population: General

270710 - Math Ready: Ready for College-Level Math

Grade Level: 11 - 12

Credits: 0.5E or 1E

Description: This course is developed by the Southern Regional Educational Board (SREB). According to the SREB Math Ready course description, this course "emphasizes understanding of math concepts rather than just memorizing procedures. Math Ready students learn the context behind the procedure: why to use a certain formula or method to solve a problem, for example. This equips them with higher-order thinking to apply math skills, functions and concepts in different situations."

http://www.sreb.org/page/1684/math_ready.html.

Content: High School Mathematics, Advanced Algebra and Geometry

Population: General

270718 - College and Career Readiness Mathematics

Grade Level: 11 - 12

Credits: 0.5E or 1E

Description: This course is designed for students who need additional instruction to prepare for college mathematics or who may not have attained Kentucky's benchmark ACT score in mathematics and should be designed to provide individualized support to enhance a student's college or career readiness. This course may serve as a mathematics elective for high school graduation, but not as one of the 3 required math courses for high school graduation: Algebra I, Geometry, or Algebra II. This course primarily addresses mathematics content covered in previous courses, and may not be approved for use in the initial-eligibility NCAA certification process. Resources for this course can be found at <http://education.ky.gov/educational/int/hscf/Pages/HSTransitionalIntervention.aspx>.

Content: High School Mathematics (General)

Population: General

270720 - College Liberal Arts Mathematics (For Dual Credit Only)

Grade Level: 11 - 12

Credits: 1E

Description: This college level mathematics course is an introduction to the application of mathematics using real-world situations. Topics are from various branches of discrete mathematics and include the concepts of ratio and proportion, units and conversions, linear equations in two variables, inequalities, graphing and writing equation of a line, percent, interest, and logical symbolism, as well as concepts from geometry, finance, descriptive statistics and probability. This course code should be used for all dual credit math courses that are categorized as College Introductory Quantitative Reasoning courses for the liberal arts pathway. Depending upon a student's choice of college or university, this course can meet the requirements for a major that does not require a college algebra pathway.

Content: Finite Mathematics

Population: General